



Assessing the short-term effects of heatwaves on mortality and morbidity in Brisbane, Australia: Comparison of case-crossover and time series analyses

Author(s): Tong S, Wang XY, Guo Y
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Abstract:

Background: Heat-related impacts may have greater public health implications as climate change continues. It is important to appropriately characterize the relationship between heatwave and health outcomes. However, it is unclear whether a case-crossover design can be effectively used to assess the event- or episode-related health effects. This study examined the association between exposure to heatwaves and mortality and emergency hospital admissions (EHAs) from non-external causes in Brisbane, Australia, using both case-crossover and time series analyses approaches. **Methods:** Poisson generalised additive model (GAM) and time-stratified case-crossover analyses were used to assess the short-term impact of heatwaves on mortality and EHAs. Heatwaves exhibited a significant impact on mortality and EHAs after adjusting for air pollution, day of the week, and season. **Results:** For time-stratified case-crossover analysis, odds ratios of mortality and EHAs during heatwaves were 1.62 (95% confidence interval (CI): 1.36-1.94) and 1.22 (95% CI: 1.14-1.30) at lag 1, respectively. Time series GAM models gave similar results. Relative risks of mortality and EHAs ranged from 1.72 (95% CI: 1.40-2.11) to 1.81 (95% CI: 1.56-2.10) and from 1.14 (95% CI: 1.06-1.23) to 1.28 (95% CI: 1.21-1.36) at lag 1, respectively. The risk estimates gradually attenuated after the lag of one day for both case-crossover and time series analyses. **Conclusions:** The risk estimates from both case-crossover and time series models were consistent and comparable. This finding may have implications for future research on the assessment of event- or episode-related (e.g., heatwave) health effects.

Source: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3360052>

Resource Description

Exposure : ☑

weather or climate related pathway by which climate change affects health

Air Pollution, Meteorological Factors, Temperature

Air Pollution: Ozone, Particulate Matter, Other Air Pollution

Air Pollution (other): NO₂

Temperature: Extreme Heat

Geographic Feature: ☑

resource focuses on specific type of geography

Climate Change and Human Health Literature Portal

Urban

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Australasia

Health Impact:

specification of health effect or disease related to climate change exposure

Morbidity/Mortality

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified